

NOTES AND REVIEWS

CH. MAURAIN. *Étude pratique des Rayonnements solaire, atmosphérique et terrestre*. Paris; Gauthier-Villars, 1937.

This volume, of nearly 200 pages, contains an extended discussion of instruments and methods for measuring the duration of sunshine, the intensity of direct solar radiation, the intensity of total solar and sky radiation, and the amount of terrestrial radiation, accompanied by a number of photographic illustrations of the instruments. Attention is also given to the reflectivity of the earth's surface, observations of ultra-violet radiation, and to the luminous equivalent of solar and sky radiation. Tabular summaries of representative data from various stations are included.

In addition, the determination of the solar constant is described, and the physical processes of the depletion of solar radiation while traversing the atmosphere are discussed; spectral intensity distributions of the different types of radiations, atmospheric turbidity, the theoretical calculation of the distribution of insolation beyond the outer limits of the appreciable atmosphere, and the theoretical calculation of the outgoing terrestrial radiation are also treated, together with the general radiation balance in the atmospheric system and its significance for climate.—*Edgar W. Woolard*.

THOMAS A. BLAIR. *Weather Elements: A Text in Elementary Meteorology*. New York; Prentice-Hall, 1937.

This book, by a member of the United States Weather Bureau who conducts instruction in meteorology at the University of Nebraska, is designed to be an introductory college textbook of elementary meteorology. An introductory chapter gives a general description of the scope of meteorology, and of the nature and general properties of the atmosphere and of the elements involved in weather and climate. The next two chapters describe the instruments and procedures for observing temperature, pressure, wind, and other meteorological elements, together with methods for obtaining data from the upper air. The following chapters discuss solar radiation and its effects, lapse rates and stability in the atmosphere, and the general structure of the atmosphere. Phenomena resulting from the condensation of water vapor in the atmosphere

are discussed in chapter 5; pressure gradients, winds, the general circulation of the atmosphere, and cyclones and anticyclones are treated in the next three chapters, followed by a chapter on thunderstorms, tornadoes, water-spouts, chinooks, etc.

Chapter 10 is devoted to weather forecasting, including a brief treatment of air mass analysis. The subject of world weather, including tele-connections, climatic fluctuations, influence of ocean currents, etc., is discussed in chapter 11. A brief treatment of the climates of the world and of the United States, and of climatic trends and controls, is given in chapter 12; while the next chapter is devoted to agricultural and aeronautical meteorology, and to the effects of climate on health and civilization.

The concluding chapters contain a treatment of electrical and optical phenomena, and an account of the work of the United States Weather Bureau. A list of books for further reading and several miscellaneous tables complete the volume.—*Edgar W. Woolard*.

Monthly Broadcasts of Climatological Data for North America.—The International Meteorological Organization, of which the United States Weather Bureau is a member, adopted at its meeting held in Warsaw, Poland, during September 1935 a resolution asking that climatological data from representative meteorological stations on each continent be broadcast by radio monthly for the use of other meteorological services as an aid in the study of world weather and long range weather forecasting. The United States Weather Bureau inaugurated in March 1937 monthly broadcasts of climatological data from selected stations in North America through the United States Navy Radio Station NAA/NSS, Washington, D. C.

These broadcasts are made on the 5th of each month but the data contained in the messages are for the preceding month. Mean monthly values of barometric pressure and temperature and total precipitation for 21 stations in the continental United States, 26 in Canada and Newfoundland, 2 stations in Alaska, and 1 each in Puerto Rico and Hawaii are included in each broadcast. The data are sent in a figure code which is easily translatable.

BIBLIOGRAPHY

[RICHMOND T. ZOCH, in Charge of Library]

By AMY D. PUTNAM

RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

Année polaire internationale, 1932-1933.

Participation française. Tome I. Introduction. Magnétisme terrestre. Auroras polaires. Ozone atmosphérique. Rayons cosmiques. Paris. 1936. 413 p. illus., diags. 33 cm.

Canellopoulos, George.

Introduction à l'étude dynamique du climat. Athènes. 1936. 14 p. tables. 25½ cm.

Chew, Arthur P.

The response of government to agriculture. An account of the origin and development of the United States Department of agriculture, on the occasion of its 75th anniversary. Washington. 1937. 107 p. 23½ cm.

Gaudefroy, Henri.

L'élévation de température des câbles des lignes de transmission dans le vent et sa relation avec l'enlèvement de la glace. Paris. 1936. p. 397-398. fig., tab. 25½ cm. (Photostated.)

Gish, O. H., & Sherman, K. L.

Electrical conductivity of air to an altitude of 22 kilometers. Wash. 1936. p. 94-116. figs., diags. 25½ cm.

Hann, Julius von.

Lehrbuch der Meteorologie. 5te vollständig neubearbeitete Auflage. Herausgegeben von R. Süring. Erste Lieferung. Leipzig. 1937. 96 p. map, tables, diags. 26½ cm. (Part I of a new 5th edition of this work.)

Hulburt, E. O.

Temperature of the lower atmosphere of the earth. Lancaster, Pa. 1931. p. 1876-1890. tables, diags. 25½ cm. [Reprinted from Physical review, Vol. 38, No. 10, Nov. 15, 1931.]

Humphreys, W. J.

Ball lightning. Philadelphia, Pa. 1936. p. 613-626. 25½ cm. [Reprinted from Proceedings of the American philosophical society. Vol. LXXVI, No. 5, 1936.]

India. Meteorological department.

Meteorological organisation for airmen. New Delhi. 1936. 51 p. fold. map, tables. 24½ cm. (M. O. A. pamphlet.)

Jelinek, A.

Beiträge zur Mechanik der periodischen Hangwinde. Köthen. 1937. p. 60-84. figs., diagrs. 25½ cm. [At head of title: Sonderdruck aus "Beiträge zur physik der freien Atmosphäre," 24 (1937).]

Über den thermischen Aufbau der periodischen Hangwinde. Köthen. 1937. p. 85-97. figs., tables, diagrs. 25½ cm. [Sonderdruck aus "Beiträge zur Physik der freien Atmosphäre," 24 (1937).]

Kibel, I.

Mathematical theory of front shifting in the atmosphere. Moscow. 1937. p. 429-431. 26 cm. [Comptes rendus (doklady) de l'académie des sciences de l'URSS. 1937. v. XIV, No. 7.]

Kimball, James H.

Weather profit. New York. 1937. p. 106-110. 30 cm. [Extract from American magazine, February, 1937.]

Knoche, Walter.

Der Einfluss von Vegetationsbranden auf die Witterung. Braunschweig. 1937. p. 243-254. tables, diagrs. 30 cm. [Sonderdruck aus der "Meteorologischen Zeitschrift," Heft 7, 1937.]

Kotter, Lillian, & Washburn, Clara M.

Aviation (grade III). Weather (grade III.) New York City. [n. d.] 18 p. 23 cm. [Teachers' lesson unit Series, No. 78.]

Kottwitz, Gerh.

Der Schwarzwald im Regenwetter. Tübingen. 1935. 24 p. figs., maps, tables. 24½ cm.

Krick, Irving P.

Forecasting the dissipation of fog and stratus clouds. Easton, Pa. 1937. p. 366-371. diagrs. 30 cm. [Repr.: Journal of the aeronautical sciences. Vol. 4, No. 9, July, 1937.]

Krische.

Klimatische Grundlagen des Ernte-Risikos bei verschiedenen Feldfrüchten. 1 p. 29½ cm. (Photostated.)

Messent, Claude J. W.

The weather vanes of Norfolk and Norwich. Norwich. 1937. 127 p. illus. 18½ cm.

Richter, Konrad.

Die Eiszeit in Norddeutschland. Berlin. 1937. vii, 179 p. figs., maps, tables, diagrs. 23 cm.

Sigma xi.

Sigma xi half century record and history, 1886-1936; compiled by Henry Baldwin Ward & Edward Ellery. . . . Schenectady, N. Y. [1936]. xviii, 1208 p. front., illus. (fac-sims.), 2 pl. (ports.), diagr. 24 cm. [Records achievements, scientific and otherwise, of members of Sigma xi.]

Thompson, W. R.

Moisture and farming in South Africa. South Africa, Central news agency, ltd. 1936. 260 p. pl., tables, diagrs. (fold.) 22 cm.

Tu, Chang-Wang.

Climatic provinces of China. Nanking. 1936. 22 p. maps (part. fold.), tables, diagrs. 26 cm. (Memoir of the National research institute of meteorology. No. 8.)

U. S. Bureau of the census.

United States census of agriculture: 1935. Reports for states with statistics for counties and a summary for the United States. . . . Wash. 1936. 1 v. maps, tables, form. 30 cm.

U. S. Great plains committee.

The future of the great plains. Message from the President of the United States transmitting the report of the Great plains committee under the title "The future of the great plains." Wash. 1937. 194 p. incl. illus., maps, charts, tables, diagrs., form, front., plates. 27 cm. (75th Cong., 1st sess. House. Doc. 144.)

SOLAR OBSERVATIONS

SOLAR RADIATION MEASUREMENTS DURING
DECEMBER 1937

By IRVING F. HAND

For a description of instruments employed and their exposures, the reader is referred to this REVIEW, page 418.

Table 1 shows that solar radiation intensities averaged above normal for the month at Washington and Lincoln, and close to normal at Madison and Blue Hill.

Table 2 shows an excess in the amount of total solar and sky radiation received on a horizontal surface during December at all stations with the exception of Twin Falls, Miami, Riverside, Blue Hill, Ithaca, and Friday Harbor. The percentage departures for the year show that all stations had an excess of radiation with the exception of Twin Falls, Miami, Riverside, San Juan, Ithaca, and Friday Harbor.

No polarization observations were made during December at Madison owing to continual snow and ice cover.

TABLE 1.—Solar radiation intensities during December 1937

[Gram-calories per minute per square centimeter of normal surface]

WASHINGTON, D. C.

Date	Sun's zenith distance											Local mean solar time	
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	noon		
	75th mer. time	Air mass											
		A. M.						P. M.					
		e	5.0	4.0	3.0	2.0	*1.0	2.0	3.0	4.0	5.0		e
Dec. 1-----	mm.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mm.		
Dec. 3-----	3.00	0.61	0.70	0.81	1.08	-----	-----	-----	-----	-----	2.62		
Dec. 8-----	2.26	.92	1.03	1.18	-----	-----	-----	-----	-----	-----	2.26		
Dec. 9-----	2.13	-----	-----	-----	1.25	-----	-----	-----	-----	-----	2.06		
Dec. 10-----	1.32	.86	.95	1.14	1.34	-----	-----	1.07	0.82	-----	1.60		
Dec. 11-----	1.96	.92	1.05	1.19	1.37	-----	-----	-----	-----	-----	1.19		
Dec. 14-----	1.78	.72	.84	1.11	-----	-----	-----	-----	-----	-----	1.37		
Dec. 24-----	1.45	-----	-----	-----	1.31	-----	-----	1.04	-----	-----	1.52		
Dec. 29-----	2.87	.74	.95	1.10	-----	-----	-----	-----	-----	-----	3.30		
Dec. 29-----	3.63	-----	-----	-----	-----	-----	-----	1.05	-----	-----	3.30		
Means-----	-----	.80	.92	1.09	1.27	-----	-----	1.05	(.82)	-----	-----		
Departures--	-----	+.01	+.02	+.04	+.04	-----	-----	+.01	-.09	-----	-----		